

ABSTRACT

A method for forming a silicon nitride film which comprises heating a substrate (2) placed in the inner space (3) of a chamber (4) to a desired temperature, feeding a hexamethyl disilazane gas and a gas containing active species formed by the plasma excitation of an N_2 gas to the chamber (4) holding the substrate (2), to thereby deposit a reaction product formed by the reaction of the hexaalkyldisilazan gas with the above active species and form the silicon nitride film. The method allows the formation of a silicon nitride film being reduced in the contents of carbon and hydrogen with safety and good efficiency.